

Evaluation and improvement of fire and natural emissions

VOC, CH₄

biomass burning, fires and others

12 talks, 14 posters

Ute Skiba

Claire Granier

Advances in VOC research

- History of VOC research
- Modelling bVOC
 - Examples from US and Central Europe (MEGAN)
 - EMEP in Europe
- EC and REA bVOC flux measurements in US
- EC and neural Network technology
- Incorporation of effect of O₃ on VOC into a dynamic vegetation model
- High uncertainty of VOC modelling, need more process info. (no good isoprene measurements in Europe!)
- Global budget of methanol/formic acid (MEGAN/satellite)
 - HCOOH influences precip. pH

Fire

- latest developments of the Global Fire Assimilation System (GFAS) in MACC
 - Observation and top down model are not perfect yet
 - Proposed active fire monitoring using geostational satellites
- Global fire estimated derived from GOME formaldehyde columns
- Develop 'Wildland Fire Emissions Information System' (WFEIS) to improve access to data and provide a consistent approach to estimating emissions at continental scales
- Link wildland fire emissions and atmospheric transport to population health in USA in a statistical model

Fire cont.

- Use remote sensing of estimate fires emissions
- Biomass burning emissions from Thailand
- Biomass burning inventory to forecast air quality in the US

Black Carbon

Can observations constrain present day and pre-industrial emissions of BC aerosols from biomass burning (icecore study, models)

Methane

- Unstudied source
 - Quantifying CH₄ from a newly flooded subtropical hydroelectric reservoir
- Boundary budget method to obtain regional CH₄ fluxes & compare with bottom up inventory (in CH)
- Compare aircraft (HIPPO) and satellite (TES) CO/CH₄ ratios in tropical wetlands and biomass burning to constrain the 6ppb CH₄ conc. increase
- Satellite/measurements: joint CO-CH₄ fluxes analysis reveals that tropical biomass burning probably played a role in the recent increase of atmospheric methane

N2O

- Importance of temperature, soil moisture and precipitation was shown in
 - Chamber and EC flux measurements
 - Global model (CLM-CN), which contained a climate module

Others

- Mercury emissions in Thailand
- Couple transport model CHIMERE and the mechanistic model VOLT,AIR (INRA) to improve NH₃ flux estimates
- N dep in dry & wet savannah's
 - First Ndep budget for a remote region in WAfrica
- Global dataset on mineral composition of arid soils as input to atmospheric mineral dust models (GMINER30) (first 1 km² map!)